CSKT

From Water Quality Assessment to Watershed Plan

September 12, 2006

CSKT Natural Resources Department
Over 125 Staff in the following programs:

- Fisheries
- Wildlife
- Recreation
- Roads
- Safety of dams
- Water management
- GIS
- Water rights
- Shoreline protection
- Air quality
- Water quality
- Wetlands
- Solid Waste
- Nonpoint Pollution

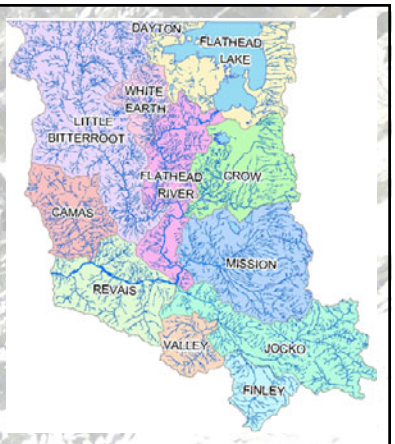
CSKT Partnership with EPA

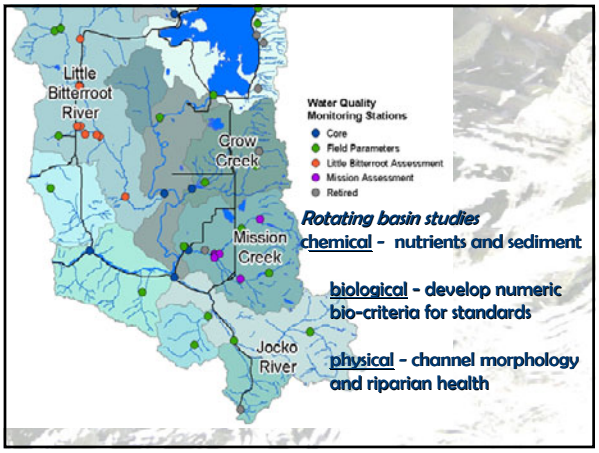
- Treatment As State (TAS) Status for:
  - *Clean Water Act*:
  - Section 106 – Water quality monitoring
  - Section 303 – Water quality standards
  - *Section 319* – Nonpoint source program
  - Section 401 – Certification for compliance with water quality standards

CSKT Water Quality Monitoring History

- Tribal water quality data collection begins early 70's
- EPA program start up - 1988
- Rotating basin monitoring approach
  - Started with Mission watershed assessment in 1998

Flathead Reservation Watersheds





Rotating basin studies

chemical - nutrients and sediment

biological - develop numeric bio-criteria for standards

physical - channel morphology and riparian health

Development of NPS Program

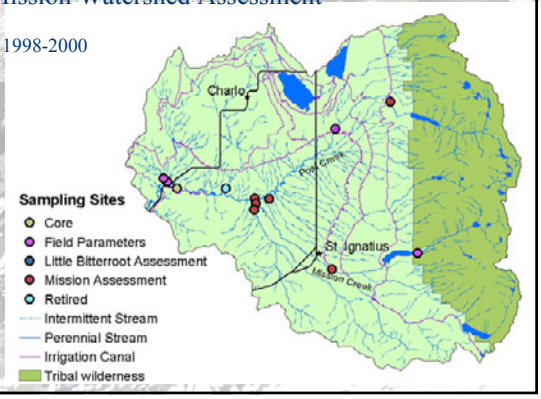
- Primary NPS stressors on the Flathead Reservation
  - Sediment
  - Temperature
  - Nutrients
- Primary causes
  - Irrigation diversions and return flows
  - Unregulated grazing
  - Loss of riparian vegetation
  - Channel Modification

NPS Projects Based on WQ Assessment

- Initial NPS grant award - 2003
  - riparian restoration and irrigation return projects
  - Moiese Wasteway = >20% of sediment load to Mission Creek
- Project focus expanded in later years
  - reducing impacts from animal feeding operations
  - restoring stream function in heavily disturbed reaches

Mission Watershed Assessment

1998-2000



Moiese Wasteway Rehabilitation

- Irrigation Return Flow
- Massive gully erosion
- Identified as source of 21% of sediment to lower Mission Creek
- Project funded by EPA (106 and 319), fisheries, wildlife and irrigation divisions

Before

Project After One Growing Season

Moiese Wasteway Restoration

Stabilized 1500 feet of actively eroding 20 ft cut banks w/ geotextiles, native plants

Coulee fenced off and water gap installed

Additional rock placed for grade control

All restoration work holding successfully

NPS Pollution - Irrigation Return Flows

- High TP, TN, TSS
- Low Dissolved Oxygen
- Extreme erosion due to head cutting

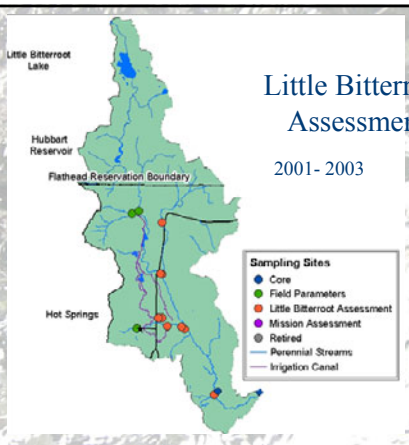
Walchuk Coulee -- 2003

NPS Pollution - Irrigation Return Flows

Eliminated primary sediment source -- 10 foot vertical eroding banks

Installed sediment collection pond

Installed PVC pipe to deliver return flows to Walchuk coulee



Little Bitterroot Assessment

2001- 2003

Christensen Ranch Restoration

2000 plants - 70% survival at 2 years Fencing - water gap

Offsite water Shade tree planting

Christensen Ranch Restoration

Recently Funded Project - McDonald Ranch

McDonald Ranch Project

- Fencing and water gaps to protect restoration plantings and allow degraded areas to recover
- Natural channel design
  - stabilize eroding banks
  - develop more functional stream morphology
- Planting of native woody plant species

Thank You